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August 31, 1990

Mr. Dee J. Williamson
U.S. Department of Energy
Grand Junction Projects Office
P.O. Box 2567
Grand Junction, CO 81502

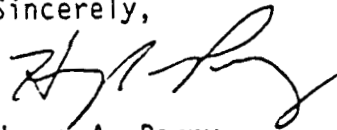
SUBJECT: MONTICELLO REMEDIAL ACTION PROJECT RI/FS ERATTA SHEETS,
GLOSSARY AND DEFINITIONS

Dear Mr. Williamson:

Attached for your review, approval and subsequent submittal to DOE Headquarters, the EPA and State of Utah are the eratta sheets, glossary and list of definitions required for completion of the Monticello Remedial Action Project RI/FS. The deadline for submittal to the EPA is September 20. Once the content of these attachments are approved, copies will be distributed to all holders of the RI/FS.

Call D. Richardson at extension 6065 or me at extension 6018 with any comments or corrections to these attachments.

Sincerely,


Harry A. Perry
Program Manager

HAP/rm

bcc: CA file

19019

FINAL REMEDIAL INVESTIGATION
MONTICELLO, UTAH, URANIUM MILL TAILINGS SITE

ERRATA, Revision 3
August 1990

1. Table of Contents. Appendix C should be titled "U. S. Army Corps of Engineers Wetlands Determination".
2. Table of Contents. Add "Appendix D. Monticello Remedial Action Project Floodplain/Wetlands Assessment".
3. Table of Contents. Add "Appendix E. Acronym and Glossary List."
4. Page xviii, fourth paragraph. Replace this paragraph with "The millsite in its present condition presents a small but significant contribution to the overall radiation risk at Monticello."
5. Page 1-1, last sentence. Delete the following, "(Abramiuk and others, issued in draft form in 1983 and was finalized in 1984)".
6. Page 1-2, last sentence. After "to" add "the north and south that was leased for the stockpiling of ore."
7. Page 1-9, first line. Prior to "are contained" add "The tailings".
8. Page 4-31, last paragraph. $75 \text{ ft}^2/\text{d} = 8.1 \times 10^{-5} \text{ m}^2/\text{s}$;
 $240 \text{ ft}^2/\text{d} = 2.6 \times 10^{-4} \text{ m}^2/\text{s}$.
9. Page 4-32, last paragraph. $206 \text{ ft}^2/\text{d} = 2.2 \times 10^{-4} \text{ m}^2/\text{s}$;
 $192 \text{ ft}^2/\text{d} = 2.1 \times 10^{-4} \text{ m}^2/\text{s}$.
10. Page 4-37, paragraph 5. $222 \text{ ft}^2/\text{d} = 2.4 \times 10^{-4} \text{ m}^2/\text{s}$;
 $176 \text{ ft}^2/\text{d} = 1.9 \times 10^{-4} \text{ m}^2/\text{s}$.
11. Page 4-38, paragraph 1. $222 \text{ ft}^2/\text{d} = 2.4 \times 10^{-4} \text{ m}^2/\text{s}$; $176 \text{ ft}^2/\text{d} = 1.9 \times 10^{-4} \text{ m}^2/\text{s}$; $0.3 \text{ to } 1.1 \text{ ft}^2/\text{d} = 3.2 \times 10^{-7} \text{ m}^2/\text{s} \text{ to } 1.2 \times 10^{-6} \text{ m}^2/\text{s}$;
 $0.7 \text{ to } 1.3 \text{ ft}^2/\text{d} = 7.5 \times 10^{-7} \text{ m}^2/\text{s} \text{ to } 1.4 \times 10^{-6} \text{ m}^2/\text{s}$.
12. Page 8-12, paragraph 1, last sentence. Replace the last sentence with "The current conditions increase total risk to levels approximately 40% above background."
13. Page 8-20, section 8.2.2.2, paragraph 3, sentence 1. The word "mi" should be replaced with "miles".

APPENDIX E

ACRONYM

AND

GLOSSARY LIST

GLOSSARY

Acronyms

AEC ---- U.S. Atomic Energy Commission
ATSDR -- Agency for Toxic Substances and Disease Registry
DOE ---- U.S. Department of Energy
DOI ---- U.S. Department of the Interior
DOL ---- U.S. Department of Labor
DOT ---- U.S. Department of Transportation
EPA ---- U.S. Environmental Protection Agency
HHS ---- U.S. Department of Health and Human Services
NIOSH -- National Institute for Occupational Safety and Health
NOAA --- National Oceanic and Atmospheric Administration
NRC ---- Nuclear Regulatory Commission

ARARs -- Applicable or Relevant and Appropriate Requirements
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CERCLIS - CERCLA Information System
CFR ---- Code of Federal Regulations
CRC ---- Community Relations Coordinator
CRP ---- Community Relations Plan
FS ----- Feasibility Study
FUSRAP - Formerly Utilized Sites Remedial Action Program
GJPO --- Grand Junctions Project Office
HRS ---- Hazard Ranking System
MRAP --- Monticello Remedial Action Program
MVP ---- Monticello Vicinity Properties
NCP ---- National Oil and Hazardous Substances Pollution Contingency Plan
NEPA --- National Environmental Policy Act of 1969
NPL ---- National Priorities List
O&M ---- Operation and Maintenance
ORNL --- Oak Ridge National Laboratory
OSHA --- Occupational Safety and Health Act/
PA ----- Preliminary Assessment
RA ----- Remedial Action
RAT ---- Radiological Assistance Team
RCRA --- Resource Conservation and Recovery Act of 1976
RD ----- Remedial Design
RI ----- Remedial Investigation
ROD ---- Record of Decision
RPM ---- Remedial Project Manager
SARA --- Superfund Amendments and Reauthorization Act of 1986
SDWA --- Safe Drinking Water Act
SI ----- Site Inspection
SMOA --- Superfund Memorandum of Agreement
UMTRA -- Uranium Mill Tailings Remedial Action
UMTRAP - Uranium Mill Tailings Remedial Action Project
UMTRCA - Uranium Mill Tailings Radiation Control Act of 1978

Definitions.

"Alpha Particle" refers to a positively-charged subatomic particle emitted during decay of certain radioactive elements. For example, an alpha particle is released when radon-222 decays to polonium-218. Alpha radiation is the least penetrating type of radiation and can be stopped by a sheet of paper or outer dead layer of skin.

"Alternative water supplies" as defined by section 101(34) of CERCLA, includes, but is not limited to, drinking water and household water supplies.

"Applicable requirements" means those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site. Only those state standards that are identified by a state in a timely manner and that are more stringent than federal requirements may be applicable.

"Background radiation" means that radioactivity in the environment, including cosmic rays from space and radiation that exists elsewhere - in the air, in the earth, and in man made materials. In the U.S. most people receive 100 to 250 millirems of background radiation per year. Within the Monticello, Utah area the background radiation level is estimated to be 14.6 μ R/h.

"Beta particle" A negatively charged sub-atomic particle emitted during the decay of certain radioactive elements.

"CERCLA" is the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986.

"CERCLIS" is the abbreviation of the CERCLA Information System, EPA's comprehensive data base and management system that inventories and tracks releases addressed or needing to be addressed by the Superfund program.

"Community relations" means EPA's program to inform and encourage public participation in the Superfund process and to respond to community concerns. The term "public" includes citizens directly affected by the site, other interested citizens or parties, organized groups, elected officials, and potentially responsible parties.

"Community relations coordinator" means lead agency staff

who work with the OSC/RPM to involve and inform the public about the Superfund process and response actions in accordance with the interactive community relations requirements set forth in the NCP.

"Cooperative agreement" is a legal instrument EPA uses to transfer money, property, services, or anything of value to a recipient to accomplish a public purpose in which substantial EPA involvement is anticipated during the performance of the project.

"Drinking water supply" as defined by section 101(7) of CERCLA, means any raw or finished water source that is or may be used by a public water system (as defined in the Safe Drinking Water Act) or as drinking water by one or more individuals.

"Facility" as defined by section 101(9) of CERCLA, means any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly owned treatment works), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, or aircraft, or any site or area, where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise come to be located; but does not include any consumer product in consumer use or any vessel.

"Feasibility study" (FS) means a study undertaken by the lead agency to develop and evaluate options for remedial action. The FS emphasizes data analysis and is generally performed concurrently and in an interactive fashion with the remedial investigation (RI), using data gathered during the RI. The RI data are used to define the objectives of the response action, to develop remedial action alternatives, and to undertake an initial screening and detailed analysis of the alternatives. The term also refers to a report that describes the results of the study.

"Fund" or "Trust Fund" means the Hazardous Substance Superfund established by section 9507 of the Internal Revenue Code of 1986.

"Gamma radiation" is a form of electromagnetic, high-energy radiation emitted from a nucleus. Gamma rays are essentially the same as x-rays and require heavy shielding, such as concrete or steel to be stopped.

"Ground water" as defined by section 101(12) of CERCLA, means water in a saturated zone or stratum beneath the surface of land or water.

"Hazard Ranking System" (HRS) means the method used by EPA to evaluate the relative potential of hazardous substance releases to cause health or safety problems, or ecological or environmental damage.

"Hazardous substance" as defined by section 101(14) of CERCLA, means: Any substance designated pursuant to section 311(b)(2)(A) of the Clean Water Act; any element, compound, mixture, solution, or substance designated pursuant to section 102 of CERCLA; any hazardous waste having the characteristics identified under or listed pursuant to section 3001 of the Solid Waste Disposal Act (but not including any waste the regulation of which under the Solid Waste Disposal Act has been suspended by Act of Congress); any toxic pollutant listed under section 307(a) of the CWA; any hazardous air pollutant listed under section 112 of the Clean Air Act; and any imminently hazardous chemical substance or mixture with respect to which the EPA Administrator has taken action pursuant to section 7 of the Toxic Substances Control Act.

"Lead agency" means the agency that provides the principle staff and resources to plan and implement a response action under the NCP. EPA, the USCG, another federal agency, or a state (or political subdivision of a state) operating pursuant to a contract or cooperative agreement executed pursuant to section 104(d)(1) of CERCLA, or designated pursuant to a Superfund Memorandum of Agreement (SMOA) entered into pursuant to Subpart F of the NCP or other agreements may be the lead agency for a response action. In the case of the Monticello Mill Tailings site the Department of Energy (DOE) is the lead agency since the release is on, or the sole source of the release is from, a facility under the jurisdiction, custody, or control of DOE.

"Management of migration" means actions that are taken to minimize and mitigate the migration of hazardous substances or pollutants or contaminants and the effects of such migration. Measures may include, but are not limited to, management of a plume of contamination, restoration of a drinking water aquifer, or surface water restoration.

"National Priorities List" (NPL) means the list, compiled by EPA pursuant to CERCLA section 105, of uncontrolled hazardous substance releases in the United States that are priorities for long-term remedial evaluation and response.

"On-site" means the areal extent of contamination and all suitable areas in very close proximity to the contamination necessary for implementation of the response action. Flexibility in defining "on-site" is necessary in order to provide expeditious response to site hazards.

"Operable unit" means a discrete action that comprises an incremental step toward comprehensively addressing site problems. This discrete portion of a remedial response manages migration, or eliminates or mitigates a release, threat of a release, or pathway of exposure. The cleanup of a site can be divided into a

number of operable units, depending on the complexity of the problems associated with the site. Operable units may address geographical portions of a site, specific site problems, or initial phases of an action, or may consist of any set of actions performed over time or any actions that are concurrent but located in different parts of a site.

"Operation and maintenance" (O&M) means measures required to maintain the effectiveness of response actions.

"Person" as defined by section 101(21) of CERCLA, means an individual, firm, corporation, association, partnership, consortium, joint venture, commercial entity, United States government, state, municipality, commission, political subdivision of a state, or any interstate body.

"Picocurie (pCi)" is a unit of measure of radioactivity. A curie is the amount of any radionuclide that undergoes exactly 3.7×10^{10} radioactive disintegrations per second. A Picocurie per liter (pCi/l) is a common unit of measurement of the concentration of radioactivity in a gas or liquid. A picocurie per liter corresponds to 0.037 disintegrations per second.

"Pollutant or contaminant" as defined by section 101(33) of CERCLA, shall include, but not be limited to, any element, substance, compound, or mixture, including disease-causing agents, which after release into the environment and upon exposure, ingestion, inhalation, or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will or may reasonably be anticipated to cause death, disease, behavioral abnormalities, cancer, genetic mutation, physiological malfunctions (including malfunctions in reproduction) or physical deformations, in such organisms or their offspring....

"Preliminary assessment" (PA) means review of existing information and an off-site reconnaissance, if appropriate, to determine if a release may require additional investigation or action. A PA may include an on-site reconnaissance, if appropriate.

"Public participation," see the definition for community relations.

"Quality assurance project plan" (QAPP) is a written document, associated with all remedial site sampling activities, which presents in specific terms the organization (where applicable), objectives, functional activities, and specific quality assurance (QA) and quality control (QC) activities designed to achieve the data quality objectives of a specific project(s) or continuing operation(s). The QAPP is prepared for each specific project or continuing operation (or group of

similar projects or continuing operations). The QAPP will be prepared by the responsible program office, regional office, laboratory, contractor, recipient of an assistance agreement, or other organization. For an enforcement action, potentially responsible parties may prepare a QAPP subject to lead agency approval.

"Radon progeny/radon daughter" is a term used to refer collectively to the intermediate products in the radon decay chain. Each "daughter" is an ultra-fine radioactive particle that decays into another radioactive "daughter" until finally a stable nonradioactive molecule of lead is formed and no further radioactivity is produced.

"Radiation" refers to the process of emitting energy in the form of rays or particles that are thrown off by disintegrating atoms. The rays or particles emitted may consist of alpha, beta, or gamma radiation.

"Release" as defined by section 101(22) of CERCLA, means any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles containing any hazardous substance or pollutant or contaminant), it excludes among other things: for the purposes of section 104 of CERCLA or any other response action, any release of source, byproduct, or special nuclear material from any processing site designated under section 102(a)(1) or 302(a) of the Uranium Mill Tailings Radiation Control Act of 1978. For purposes of the NCP, release also means threat of release.

"Relevant and appropriate requirements" means those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site. Only those state standards that are identified in a timely manner and are more stringent than federal requirements may be relevant and appropriate.

"Remedial design" (RD) means the technical analysis and procedures which follow the selection of remedy for a site and result in a detailed set of plans and specifications for implementation of the remedial action.

"Remedial investigation" (RI) is a process undertaken by the lead agency to determine the nature and extent of the problem presented by the release. The RI emphasizes data collection and

site characterization, and is generally performed concurrently and in an interactive fashion with the feasibility study. The RI includes sampling and monitoring, as necessary, and includes the gathering of sufficient information to determine the necessity for remedial action and to support the evaluation of remedial alternatives.

"Remedial project manager" (RPM) means the official designated by the lead agency to coordinate, monitor, or direct remedial or other response actions under Subpart E of the NCP.

"Remedy or remedial action" (RA) means those actions consistent with permanent remedy taken instead of, or in addition to, removal action in the event of a release or threatened release of a hazardous substance into the environment, to prevent or minimize the release of hazardous substances so that they do not migrate to cause substantial danger to present or future public health or welfare or the environment....the term includes off-site transport and off-site storage, treatment, destruction, or secure disposition of hazardous substances and associated contaminated materials. For the purpose of the NCP, the term also includes enforcement activities related thereto.

"Remove or removal" as defined by section 101(23) of CERCLA, remove or removal means the cleanup or removal of released hazardous substances from the environment; such actions as may be necessary taken in the event of the threat of release of hazardous substances into the environment; such actions as may be necessary to monitor, assess, and evaluate the release or threat of release of hazardous substances; the disposal of removed material; or the taking of such other actions as may be necessary to prevent, minimize, or mitigate damage to the public health or welfare or to the environment, which may otherwise result from a release or threat of release. The term includes, in addition, without being limited to, security fencing or other measures to limit access, provision of alternative water supplies, temporary evacuation and housing of threatened individuals not otherwise provided for, action taken under section 104(b) of CERCLA, post-removal site control, where appropriate, and any emergency assistance which may be provided under the Disaster Relief Act of 1974. For the purpose of the NCP, the term also includes enforcement activities related thereto.

"Roentgen Equivalent Man (REM)" is a unit of radiation exposure that indicates the potential impact on human cells.

"SARA" is the Superfund Amendments and Reauthorization Act of 1986. In addition to certain free-standing provisions of law, it includes amendments to CERCLA, the Solid Waste Disposal Act, and the Internal Revenue Code.

"Site inspection" (SI) means an on-site investigation to determine whether there is a release or potential release and the nature of the associated threats. The purpose is to augment the data collected in the preliminary assessment and to generate, if necessary, sampling and other field data to determine if further action or investigation is appropriate.

"Source control action" is the construction or installation and start-up of those actions necessary to prevent the continued release of hazardous substances or pollutants or contaminants (primarily from a source on top of or within the ground, or in buildings or other structures) into the environment.

"Source control maintenance measures" are those measures intended to maintain the effectiveness of source control actions once such actions are operating and functioning properly, such as the maintenance of landfill caps and leachate collection systems.

"State" means the state of Utah.

"Superfund Memorandum of Agreement" (SMOA) means a nonbinding, written document executed by an EPA Regional Administrator and the head of a state agency that may establish the nature and extent of EPA and state interaction during the removal, pre-remedial, remedial, and/or enforcement response process. The SMOA is not a site-specific document although attachments may address specific sites. The SMOA generally defines the role and responsibilities of both the lead and the support agencies.

"Superfund state contract" is a joint, legally binding agreement between EPA and a state to obtain the necessary assurances before a federal-lead remedial action can begin at a site. In the case of a political subdivision-lead remedial response, a three-party Superfund state contract among EPA, the state, and political subdivision thereof, is required before a political subdivision takes the lead for any phase of remedial response to ensure state involvement pursuant to section 121(f)(1) of CERCLA. The Superfund state contract may be amended to provide the state's CERCLA section 104 assurances before a political subdivision can take the lead for remedial action.

"Threat of discharge or release," see definitions for discharge and release.

"Threat of release," see definition for release.

"Treatment technology" means any process or series of processes that alters the composition of a hazardous substance or pollutant or contaminant through chemical, biological, or physical means so as to reduce toxicity, mobility, or volume of the contaminated materials being treated. Treatment technologies

are an alternative to land disposal of hazardous wastes without treatment.

FINAL FEASIBILITY STUDY
MONTECELLO, UTAH, URANIUM MILL TAILINGS SITE

ERRATA, Revision 2
August 1990

1. Table of Contents, Add "Appendix J. Acronym and Glossary List."
2. Executive Summary, paragraph 3, sentences 1 & 2. Replace with, "The Monticello Millsite is listed on the National Priorities List (NPL) as defined by CERCLA and SARA." Delete sentence 2.
3. Page xv, paragraph 1. Delete sentence 2. Add "whole body" to sentence 3, prior to "radiation exposure".
4. Page XV, paragraph 4: "off-site" should be "off-site."
5. Page 1-1, section 1.1. After the second paragraph add the following paragraph, "The RI/FS has been supplemented to include analyses sufficient to enable the Department to assess the impacts of the remedial action alternatives considered in terms of the requirements of the National Environmental Policy Act (NEPA). As such, this RI/FS also serves as an Environmental Assessment (EA) for the purposes of NEPA. On the basis of this RI/FS-EA, the Department would issue a Finding of No Significant Impact (FONSI) for the preferred remedial action alternative identified therein, if appropriate."
6. Page 1-2, Figure 1-1. No scale is available for this figure.
7. Page 1-3, Figure 1-2. No scale is available for this figure.
8. Page 1-7, paragraph 2, last sentence. "wash-ing" should be "washing".
9. Page 1-10, sentence 1. Replace "species" with "compounds".
10. Page 1-11, line 6. "tail-ings" should be "tailings".
11. Page 1-14, Table 1-1. Add footnote at bottom as follows, "Man-rem is defined as the total radiation dose received by a population. It is the average radiation dose in rems (roentgen equivalent man) multiplied by the number of people in the population group."
12. Page 1-16, paragraph 2, sentence 2. Add "(those properties peripheral to the millsite which are contaminated by wind-blown or water-borne tailings)" immediately following "peripheral properties".
13. Page 1-16, paragraph 4, sentence 5. Replace with "The millsite in its present condition presents a small but significant contribution to the overall radiation risk at Monticello."
14. Page 1-16, last sentence. Replace with "The enhanced conditions increase total risk to levels approximately 40 percent above background."

15. Page 1-18, sentence 2. After "controlled", add "by such things as monitoring and institutional controls."13. Page 1-18, paragraph 5, sentence 2. Add "the" immediately following "exceed".
16. Page 1-24, line 5. Add "the" immediately prior to "Monticello".
17. Page 1-30, third sentence from end. Replace sentence with "Off-site disposal siting criteria preclude the use of floodplains/wetlands for radioactive waste disposal."
18. Page 1-32, Table 1-3, first and second Descriptions. Replace "containment" with "concentration".
19. Page 1-34, Table 1-3, last Status. Replace "offsite" with "off-site".
20. Page 1-41, Table 1-6, third Remark. Delete first period and replace "is" with "in".
21. Page 1-51, paragraph 1, sentence 3. Replace "MCLS" with "MCLs".
22. Page 1-51, table: "Activity should be indented."
23. Page 2-1, paragraph 4, last sentence. After "basis" add "(as defined in Section 2.4.2)".
24. Page 2-3, sentence 2. Delete "small".
25. Page 2-3, paragraph 4, sentence 1. Replace the sentence with "The site is at an elevation of 7,000 feet above MSL."
26. Page 2-4, after last paragraph, include this sentence: "The following sections briefly discuss the various engineering techniques that could be used during the remediation process."
27. Page 2-5, paragraph 3, sentence 4: "Certainly less effective than fencing should be changed to "ineffective."
28. Page 2-10, technology column, paragraph 3: "Pond" should be changed to "ponds."
29. Page 2-12, Table 2-1, forth collection of Process Options. Replace "line" with "lime".
30. Page 2-13, technology column, paragraph 4: "Evaporatory" should be indented.
31. Page 3-2, paragraph 2, sentence 2. Following this sentence, add "The White Mesa Mill was chosen to typify the potential remediation alternative of relocation to an existing mill. The mention of this mill is not intended to be an endorsement."
32. Page 3-2, last paragraph, sentence 1. End the sentence following "area". Add "Figure 3-2 shows the south site location and a hypothetical location of the tailings repository within the south site, for discussion purposes."

33. Page 3-7, section 3.1.2.1, first sentence. Add "of the design/site" immediately following "effectiveness".
34. Page 3-10, paragraph 2, last sentence. Following this sentence, add "The White Mesa Mill was chosen to typify the remediation alternative of relocation to an existing mill. The mention of this mill is not intended to be an endorsement."
35. Section 4.2.1.7: Additional information regarding the calculation of costs is located in the Responsiveness Summary for the Monticello Remedial Action Project Superfund Site.
36. Page 4-6, Capital Costs, sentence 4. Add closing parenthesis after the sentence.
37. Page 4-7, bullet 2. Replace "offsite" with "off-site".
38. Page 4-9, section 4.3.1.1, paragraph 2. Add the following to the end of this paragraph "Note that Figure 4-1 shows a hypothetical location for the proposed repository within the south site, for discussion purposes. The exact location of the repository will be determined in the remedial design phase."
39. Page 4-19, bullet 3, sentence 1: "Where on the repository" should be where the repository."
40. Page 4-19, bullet 3, first sentence. Following "although" add "the range of". Complete the sentence following the last scientific name with "does extend through the millsite area".
41. Page 4-21, last paragraph, sentence 4. Replace this sentence with the following: "The nonradiological risk to the public was only calculated for the remedial action alternatives."
42. Page 4-28, paragraph 4, sentences 1 and 2. The first two sentences in this paragraph should read "One area within the south site which could house the repository is that directly adjacent to Highway 191. To the person traveling this road, the stabilized pile would appear as a low hill 30 to 40 feet high covering approximately 40 acres."
43. Page 4-30, Natural Resources, sentence 3. Replace "these" with "oil and gas".
44. Page 4-31, paragraph 2, sentence 3. Following "time frame" add "and loaded trucks hauling to the repository,".
45. Page 4-31, paragraph 2, last sentence. Following the last sentence add "This does not include trucks returning to the millsite empty; therefore, truck traffic is likely to be increased by twice as much."
46. Page 4-32, paragraph 2. The water consumption estimates are based on the following uses: The amount of water needed to achieve optimum moisture content during compaction and dust control. The actual number was derived by assuming a specific moisture content multiplied by the amount of material transported.

47. Page 4-32, paragraph 2, last sentence. Replace "that" with "the potable water" and after "negligible" add "due to an existing excess capacity of 800,000 gal./day."
48. Page 4-34, third discussion of Criteria #3. Delete the last sentence.
49. Page 4-35, second discussion of Criteria #5, sentence 8. Replace "stingent" with "stringent".
50. Page 4-38, paragraph 3, sentence 2. Delete "tacit" and after "Decision" add "in November, 1989,".
51. Page 4-38, paragraph 5, last sentence. Add "relevant and" immediately prior to "appropriate".
52. Page 4-40, last sentence. Add "of clean-up" immediately following "costs".
53. Page 4-43, paragraph 3, sentence 3. Replace "projection" with "protection" and delete "the" prior to "human".
54. Page 4-47, section 4.4.4.7, last sentence. Replace "environmental" with "environmentally sensitive".
55. Page 4-59, first paragraph, last sentence. Replace "groundwater" with "ground water".
56. Page 4-60, first paragraph, last sentence. Replace "groundwater" with "ground water".
57. Page 4-62, last paragraph, sentence 5. Replace "chamical" with "chemical".
58. Page 4-62, last sentence. Replace "cnditionns" with "conditions".
59. Page 4-68, last discussion of Criterion #1. Replace "80" with "60".
60. Page A-2, line eleven. Replace "applicable" with "relevant and appropriate".
61. Page B-1, paragraph 3: "80" should be changed to "60."
62. Page B-7, section B.4, first sentence. Replace "These" with "The".
63. Page C-2, last paragraph, last sentence. Delete "is through contaminated areas" and add "would be made a radiologically-controlled area."
64. Page C-5, section C.2.1, sentence 2. Complete the sentence after "until" with "1996 when all the tailings will have been removed."
65. Page F-13: The 1989 total present worth should be \$6,444,000 instead of \$6,378,000.
66. Figures 3-2 and 4-1 should be changed to specify the entire south site rather than propose a location for the repository.

67. Table 1-7 has been superseded by Table 10-1 in the Record of Decision for the Monticell Remedial Action Project Superfund Site.

68. Table 1-7, number 10: "25-1-5" should be changed to "26-1-5."

69. Table 1-7, number 10: "Title 25" should be changed to "title 26."

APPENDIX J

ACRONYM
AND
GLOSSARY LIST

GLOSSARY

Acronyms

AEC ---- U.S. Atomic Energy Commission
ATSDR -- Agency for Toxic Substances and Disease Registry
DOE ---- U.S. Department of Energy
DOI ---- U.S. Department of the Interior
DOL ---- U.S. Department of Labor
DOT ---- U.S. Department of Transportation
EPA ---- U.S. Environmental Protection Agency
HHS ---- U.S. Department of Health and Human Services
NIOSH -- National Institute for Occupational Safety and Health
NOAA --- National Oceanic and Atmospheric Administration
NRC ---- Nuclear Regulatory Commission

ARARs -- Applicable or Relevant and Appropriate Requirements
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act of 1980
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NEPA --- National Environmental Policy Act of 1969
NPL ---- National Priorities List
O&M ---- Operation and Maintenance
ORNL --- Oak Ridge National Laboratory
OSHA --- Occupational Safety and Health Act/
PA ----- Preliminary Assessment
RA ----- Remedial Action
RAT ---- Radiological Assistance Team
RCRA --- Resource Conservation and Recovery Act of 1976
RD ----- Remedial Design
RI ----- Remedial Investigation
ROD ---- Record of Decision
RPM ---- Remedial Project Manager
SARA --- Superfund Amendments and Reauthorization Act of 1986
SDWA --- Safe Drinking Water Act
SI ----- Site Inspection
SMOA --- Superfund Memorandum of Agreement
UMTRA -- Uranium Mill Tailings Remedial Action
UMTRAP - Uranium Mill Tailings Remedial Action Project
UMTRCA - Uranium Mill Tailings Radiation Control Act of 1978

Definitions.

"Alpha Particle" refers to a positively-charged subatomic particle emitted during decay of certain radioactive elements. For example, an alpha particle is released when radon-222 decays to polonium-218. Alpha radiation is the least penetrating type of radiation and can be stopped by a sheet of paper or outer dead layer of skin.

"Alternative water supplies" as defined by section 101(34) of CERCLA, includes, but is not limited to, drinking water and household water supplies.

"Applicable requirements" means those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site. Only those state standards that are identified by a state in a timely manner and that are more stringent than federal requirements may be applicable.

"Background radiation" means that radioactivity in the environment, including cosmic rays from space and radiation that exists elsewhere - in the air, in the earth, and in man made materials. In the U.S. most people receive 100 to 250 millirems of background radiation per year. Within the Monticello, Utah area the background radiation level is estimated to be 14.6 μ R/h.

"Beta particle" A negatively charged sub-atomic particle emitted during the decay of certain radioactive elements.

"CERCLA" is the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986.

"CERCLIS" is the abbreviation of the CERCLA Information System, EPA's comprehensive data base and management system that inventories and tracks releases addressed or needing to be addressed by the Superfund program.

"Community relations" means EPA's program to inform and encourage public participation in the Superfund process and to respond to community concerns. The term "public" includes citizens directly affected by the site, other interested citizens or parties, organized groups, elected officials, and potentially responsible parties.

"Community relations coordinator" means lead agency staff

who work with the OSC/RPM to involve and inform the public about the Superfund process and response actions in accordance with the interactive community relations requirements set forth in the NCP.

"Cooperative agreement" is a legal instrument EPA uses to transfer money, property, services, or anything of value to a recipient to accomplish a public purpose in which substantial EPA involvement is anticipated during the performance of the project.

"Drinking water supply" as defined by section 101(7) of CERCLA, means any raw or finished water source that is or may be used by a public water system (as defined in the Safe Drinking Water Act) or as drinking water by one or more individuals.

"Facility" as defined by section 101(9) of CERCLA, means any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly owned treatment works), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, or aircraft, or any site or area, where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise come to be located; but does not include any consumer product in consumer use or any vessel.

"Feasibility study" (FS) means a study undertaken by the lead agency to develop and evaluate options for remedial action. The FS emphasizes data analysis and is generally performed concurrently and in an interactive fashion with the remedial investigation (RI), using data gathered during the RI. The RI data are used to define the objectives of the response action, to develop remedial action alternatives, and to undertake an initial screening and detailed analysis of the alternatives. The term also refers to a report that describes the results of the study.

"Fund" or "Trust Fund" means the Hazardous Substance Superfund established by section 9507 of the Internal Revenue Code of 1986.

"Gamma radiation" is a form of electromagnetic, high-energy radiation emitted from a nucleus. Gamma rays are essentially the same as x-rays and require heavy shielding, such as concrete or steel to be stopped.

"Ground water" as defined by section 101(12) of CERCLA, means water in a saturated zone or stratum beneath the surface of land or water.

"Hazard Ranking System" (HRS) means the method used by EPA to evaluate the relative potential of hazardous substance releases to cause health or safety problems, or ecological or environmental damage.

"Hazardous substance" as defined by section 101(14) of CERCLA, means: Any substance designated pursuant to section 311(b)(2)(A) of the Clean Water Act; any element, compound, mixture, solution, or substance designated pursuant to section 102 of CERCLA; any hazardous waste having the characteristics identified under or listed pursuant to section 3001 of the Solid Waste Disposal Act (but not including any waste the regulation of which under the Solid Waste Disposal Act has been suspended by Act of Congress); any toxic pollutant listed under section 307(a) of the CWA; any hazardous air pollutant listed under section 112 of the Clean Air Act; and any imminently hazardous chemical substance or mixture with respect to which the EPA Administrator has taken action pursuant to section 7 of the Toxic Substances Control Act.

"Lead agency" means the agency that provides the principle staff and resources to plan and implement a response action under the NCP. EPA, the USCG, another federal agency, or a state (or political subdivision of a state) operating pursuant to a contract or cooperative agreement executed pursuant to section 104(d)(1) of CERCLA, or designated pursuant to a Superfund Memorandum of Agreement (SMOA) entered into pursuant to Subpart F of the NCP or other agreements may be the lead agency for a response action. In the case of the Monticello Mill Tailings site the Department of Energy (DOE) is the lead agency since the release is on, or the sole source of the release is from, a facility under the jurisdiction, custody, or control of DOE.

"Management of migration" means actions that are taken to minimize and mitigate the migration of hazardous substances or pollutants or contaminants and the effects of such migration. Measures may include, but are not limited to, management of a plume of contamination, restoration of a drinking water aquifer, or surface water restoration.

"National Priorities List" (NPL) means the list, compiled by EPA pursuant to CERCLA section 105, of uncontrolled hazardous substance releases in the United States that are priorities for long-term remedial evaluation and response.

"On-site" means the areal extent of contamination and all suitable areas in very close proximity to the contamination necessary for implementation of the response action. Flexibility in defining "on-site" is necessary in order to provide expeditious response to site hazards.

"Operable unit" means a discrete action that comprises an incremental step toward comprehensively addressing site problems. This discrete portion of a remedial response manages migration, or eliminates or mitigates a release, threat of a release, or pathway of exposure. The cleanup of a site can be divided into a

number of operable units, depending on the complexity of the problems associated with the site. Operable units may address geographical portions of a site, specific site problems, or initial phases of an action, or may consist of any set of actions performed over time or any actions that are concurrent but located in different parts of a site.

"Operation and maintenance" (O&M) means measures required to maintain the effectiveness of response actions.

"Person" as defined by section 101(21) of CERCLA, means an individual, firm, corporation, association, partnership, consortium, joint venture, commercial entity, United States government, state, municipality, commission, political subdivision of a state, or any interstate body.

"Picocurie (pCi)" is a unit of measure of radioactivity. A curie is the amount of any radionuclide that undergoes exactly 3.7×10^{10} radioactive disintegrations per second. A Picocurie per liter (pCi/l) is a common unit of measurement of the concentration of radioactivity in a gas or liquid. A picocurie per liter corresponds to 0.037 disintegrations per second.

"Pollutant or contaminant" as defined by section 101(33) of CERCLA, shall include, but not be limited to, any element, substance, compound, or mixture, including disease-causing agents, which after release into the environment and upon exposure, ingestion, inhalation, or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will or may reasonably be anticipated to cause death, disease, behavioral abnormalities, cancer, genetic mutation, physiological malfunctions (including malfunctions in reproduction) or physical deformations, in such organisms or their offspring....

"Preliminary assessment" (PA) means review of existing information and an off-site reconnaissance, if appropriate, to determine if a release may require additional investigation or action. A PA may include an on-site reconnaissance, if appropriate.

"Public participation," see the definition for community relations.

"Quality assurance project plan" (QAPP) is a written document, associated with all remedial site sampling activities, which presents in specific terms the organization (where applicable), objectives, functional activities, and specific quality assurance (QA) and quality control (QC) activities designed to achieve the data quality objectives of a specific project(s) or continuing operation(s). The QAPP is prepared for each specific project or continuing operation (or group of

similar projects or continuing operations). The QAPP will be prepared by the responsible program office, regional office, laboratory, contractor, recipient of an assistance agreement, or other organization. For an enforcement action, potentially responsible parties may prepare a QAPP subject to lead agency approval.

"Radon progeny/radon daughter" is a term used to refer collectively to the intermediate products in the radon decay chain. Each "daughter" is an ultra-fine radioactive particle that decays into another radioactive "daughter" until finally a stable nonradioactive molecule of lead is formed and no further radioactivity is produced.

"Radiation" refers to the process of emitting energy in the form of rays or particles that are thrown off by disintegrating atoms. The rays or particles emitted may consist of alpha, beta, or gamma radiation.

"Release" as defined by section 101(22) of CERCLA, means any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles containing any hazardous substance or pollutant or contaminant), it excludes among other things: for the purposes of section 104 of CERCLA or any other response action, any release of source, byproduct, or special nuclear material from any processing site designated under section 102(a)(1) or 302(a) of the Uranium Mill Tailings Radiation Control Act of 1978. For purposes of the NCP, release also means threat of release.

"Relevant and appropriate requirements" means those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site. Only those state standards that are identified in a timely manner and are more stringent than federal requirements may be relevant and appropriate.

"Remedial design" (RD) means the technical analysis and procedures which follow the selection of remedy for a site and result in a detailed set of plans and specifications for implementation of the remedial action.

"Remedial investigation" (RI) is a process undertaken by the lead agency to determine the nature and extent of the problem presented by the release. The RI emphasizes data collection and

site characterization, and is generally performed concurrently and in an interactive fashion with the feasibility study. The RI includes sampling and monitoring, as necessary, and includes the gathering of sufficient information to determine the necessity for remedial action and to support the evaluation of remedial alternatives.

"Remedial project manager" (RPM) means the official designated by the lead agency to coordinate, monitor, or direct remedial or other response actions under Subpart E of the NCP.

"Remedy or remedial action" (RA) means those actions consistent with permanent remedy taken instead of, or in addition to, removal action in the event of a release or threatened release of a hazardous substance into the environment, to prevent or minimize the release of hazardous substances so that they do not migrate to cause substantial danger to present or future public health or welfare or the environment....the term includes off-site transport and off-site storage, treatment, destruction, or secure disposition of hazardous substances and associated contaminated materials. For the purpose of the NCP, the term also includes enforcement activities related thereto.

"Remove or removal" as defined by section 101(23) of CERCLA, remove or removal means the cleanup or removal of released hazardous substances from the environment; such actions as may be necessary taken in the event of the threat of release of hazardous substances into the environment; such actions as may be necessary to monitor, assess, and evaluate the release or threat of release of hazardous substances; the disposal of removed material; or the taking of such other actions as may be necessary to prevent, minimize, or mitigate damage to the public health or welfare or to the environment, which may otherwise result from a release or threat of release. The term includes, in addition, without being limited to, security fencing or other measures to limit access, provision of alternative water supplies, temporary evacuation and housing of threatened individuals not otherwise provided for, action taken under section 104(b) of CERCLA, post-removal site control, where appropriate, and any emergency assistance which may be provided under the Disaster Relief Act of 1974. For the purpose of the NCP, the term also includes enforcement activities related thereto.

"Roentgen Equivalent Man (REM)" is a unit of radiation exposure that indicates the potential impact on human cells.

"SARA" is the Superfund Amendments and Reauthorization Act of 1986. In addition to certain free-standing provisions of law, it includes amendments to CERCLA, the Solid Waste Disposal Act, and the Internal Revenue Code.

"Site inspection" (SI) means an on-site investigation to determine whether there is a release or potential release and the nature of the associated threats. The purpose is to augment the data collected in the preliminary assessment and to generate, if necessary, sampling and other field data to determine if further action or investigation is appropriate.

"Source control action" is the construction or installation and start-up of those actions necessary to prevent the continued release of hazardous substances or pollutants or contaminants (primarily from a source on top of or within the ground, or in buildings or other structures) into the environment.

"Source control maintenance measures" are those measures intended to maintain the effectiveness of source control actions once such actions are operating and functioning properly, such as the maintenance of landfill caps and leachate collection systems.

"State" means the state of Utah.

"Superfund Memorandum of Agreement" (SMOA) means a nonbinding, written document executed by an EPA Regional Administrator and the head of a state agency that may establish the nature and extent of EPA and state interaction during the removal, pre-remedial, remedial, and/or enforcement response process. The SMOA is not a site-specific document although attachments may address specific sites. The SMOA generally defines the role and responsibilities of both the lead and the support agencies.

"Superfund state contract" is a joint, legally binding agreement between EPA and a state to obtain the necessary assurances before a federal-lead remedial action can begin at a site. In the case of a political subdivision-lead remedial response, a three-party Superfund state contract among EPA, the state, and political subdivision thereof, is required before a political subdivision takes the lead for any phase of remedial response to ensure state involvement pursuant to section 121(f)(1) of CERCLA. The Superfund state contract may be amended to provide the state's CERCLA section 104 assurances before a political subdivision can take the lead for remedial action.

"Threat of discharge or release," see definitions for discharge and release.

"Threat of release," see definition for release.

"Treatment technology" means any process or series of processes that alters the composition of a hazardous substance or pollutant or contaminant through chemical, biological, or physical means so as to reduce toxicity, mobility, or volume of the contaminated materials being treated. Treatment technologies

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are an alternative to land disposal of hazardous wastes without treatment.